

- Euphorbia Helioscopia.*
E. amygdaloides.
E. Peplus.
Mercurialis perennis.
Urtica dioica.
Ulmus suberosa.
U. montana.
Fagus sylvatica.
Corylus Avellana.
Alnus glutinosa.
Arum maculatum.
Lemna minor.
Alisma Plantago.
Orchis mascula.
O. maculata.
Tamus communis.
Scilla nutans.
Allium ursinum.
Luzula campestris.
L. multiflora.
Juncus conglomeratus.
J. effusus.
J. glaucus.
J. acutiflorus.
J. lamprocarpus.
J. bufonius.
Anthoxanthum odoratum.
Digraphis arundinacea.
Alopecurus geniculatus.
A. pratensis.
Phleum pratense.
Agrostis alba.
A. vulgaris.
Aira cæspitosa.
- A. caryophyllæa.*
A. præcox.
Avena elatior and *b. nodosum.*
Holcus mollis.
H. lanatus.
Triodia decumbens.
Molinia cærulea.
Melica uniflora.
Glyceria fluitans.
Poa annua.
P. pratensis.
P. trivialis.
Briza media.
Cynosurus cristatus.
Dactylis glomerata.
Festuca sciuroides.
F. ovina.
F. duriuscula.
F. elatior.
F. pratensis.
Bromus sterilis.
B. mollis.
Brachypodium sylvaticum.
Triticum repens.
Lolium perenne.
Pteris aquilina.
Asplenium Adiantum-nigrum.
A. Trichomanes.
Athyrium Filix-femina.
Scolopendrium vulgare.
Nephrodium Filix-mas.
N. dilatatum.
Polypodium vulgare.
Equisetum arvense.

CONTRIBUTIONS TO THE FLORA OF CENTRAL MADAGASCAR.

By J. G. BAKER, F.R.S.

(Concluded from p. 245.)

LORANTHUS (*Dendrophthoe*) **BARONI**, n. sp.—A shrub 4–5 feet long, glabrous in all its parts, with pale woody terete lenticellate branchlets. Leaves opposite, distinctly petioled, oblong, acute, 2–3 in. long, moderately firm in texture, green on both surfaces, distinctly penninerved, with 5–6-jugate ascending perceptible main ribs. Flowers 5–6 together in sessile umbels mainly from the nodes of the branches below their leafy portion; pedicels nearly as

long as the calyx. Calyx $\frac{1}{8}$ in. long, with an oblong tube, minute quadrate teeth and a small oblique deltoid bracteole at the base. Corolla cylindrical, bright red, $\frac{1}{4}$ in. long, slit down one side below the middle; segments lanceolate, $\frac{1}{4}$ in. long. Anthers lanceolate, subsessile at the throat of the corolla-tube. Style as long as the corolla. Berry oblong, $\frac{1}{4}$ – $\frac{1}{3}$ in. long.—A common parasite in the woods of the Betsileo country, *Baron* 20! and Dr. Parker sends what is probably a variety of the same species grown in a more exposed situation, with thicker leaves with less distinct veining, under the native name of *Hazo-miavona*.

TAMBOURISSA PARVIFOLIA, n. sp.—A tree with slender glabrous branchlets. Leaves opposite, distinctly petioled, oblong, obtuse, entire, subcoriaceous, deltoid or rather rounded at the base, green and glabrous on both surfaces, 1–1 $\frac{1}{2}$ in. long, the 5–6-jugate fine almost patent main veins connected by arches within the margin. Male flowers 4–8 in racemes or umbels on short lateral peduncles; pedicels curved, $\frac{1}{4}$ – $\frac{1}{3}$ in. long, with a small persistent deltoid bract subtending them at the base. Male perianth suborbicular, brownish, coriaceous, $\frac{1}{8}$ in. diam., permanently closed, without any aperture at the apex, filled up with the oblong sessile or nearly sessile anthers, those of the opposite sides touching at their tips. Female perianth and fruit not seen.—Forests of Central Madagascar, *Dr. Parker*! Native name *Ambora* and *Amboravato*.

URERA AMBERANA, n. sp.—A shrub with ultimate branchlets as stout as a pencil. Petiole 2–3 in. long; stipules deciduous; blade cordate-ovate-cuspidate, 5–6 in. long, deeply serrated, thin in texture, green with a thin covering of short bristly hairs on both surfaces. Flowers monoicous, in clusters on the slender branches of oblong bipinnate panicles which with their peduncles are about as long as the leaves. Male flowers only seen. Male perianth depresso-globose, greenish, 1 lin. diam., with 5 deltoid valvate teeth, a short tube and 5 oblong stamens with very short filaments surrounding a rudimentary ovary. Round villages in the Betsileo country, *Baron* 321! Native name *Amberana*.

PIPTURUS INTEGRIFOLIUS, n. sp.—A shrub 6–8 feet high, the slender branchlets clothed with white tomentum. Leaves alternate, distinctly petioled; stipules ovate, scarious, brown, deciduous; blade ovate, acute, entire, 1–1 $\frac{1}{2}$ in. long, green and shortly pilose on the upper surface, clothed with white tomentum beneath, with 3–4-jugate erecto-patent main veins. Flowers in dense sessile globose monoicous clusters in the axils of the leaves. Male bud orbicular, pilose. Male perianth with 5 deltoid segments and 5 inflexed stamens with filaments as long as the orbicular anthers surrounding the rudimentary ovary. Pericarp crustaceous, adhering to the entire ampullæform pilose perianth of the female flower.—Shrubby places in West Betsileo, flowering in December, *Baron* 103! Native name, *Fotsimivadika* (= white on the other side.)

PILEA HYPNOPHILA, n. sp.—An annual herb, with erect glabrous stems under a foot long. Leaves distant, opposite, the uppermost pair with a short, the lower with a long ($\frac{1}{2}$ – $\frac{3}{4}$ in.) petiole; stipules semiorbicular, adnate to the petiole, $\frac{1}{8}$ in. long; blade

ovate, membranous, acute, 1-1½ in. long, deeply serrated above the entire deltoid base, green and slightly bristly on both surfaces. Flowers in small (monoicous) sessile clusters in the axils of the upper leaves. Female perianth with 3 unequal bristly segments, the largest oblong, obtuse, as long as the achene. Achene ovoid, flattened, slightly oblique, pale brown, ¼ in. long.—Mossy banks in woods of East Betsileo, flowering in December and January, *Baron* 117! Near the Tropical African *P. tetraphylla*, Blume.

CROTON (Eucroton) MYRIASTER, n. sp.—A shrub, with slender terete woody branchlets, rugose, with pale brown tomentum. Leaves alternate; stipules setaceous, deciduous; petiole $\frac{1}{2}$ - $\frac{3}{4}$ in.; blade ovate or oblong-lanceolate, acute, 2-3 in. long, moderately firm in texture, green, with very copious minute tufts of stellate hairs above, drab and softly pilose beneath, copiously penninerved, furnished with a pair of small sessile blackish patellæform glands at the base. Flowers in a short simple erect terminal raceme, with a densely tomentose axis, many males, about 2 females; bracts minute, linear or lanceolate. Male calyx campanulate, $\frac{1}{8}$ in. diam., with 5 deltoid lobes reaching down nearly to the base, densely brown-tomentose on the outside, 5 small petals and about 12 stamens, with filaments twice as long as the anthers. Female flowers with 5 tomentose brown sepals $\frac{1}{8}$ in. long, no petals, and a densely brown-hispid ovary $\frac{1}{8}$ in. diam., with several branches to each of the styles.—Forests of East Betsileo, *Baron* 223! Native name *Mongipasina*. A near ally of *C. tiliaefolius*, Lam., and *C. lacciferus*, L.

CROTON (Eucroton) PLATANIFOLIUS, n. sp.—A shrub, with slender woody terete branchlets, rough towards the top, with pale brown tomentum. Leaves alternate; petiole 2-3 in. long; blade cordate-orbicular, with a pair of stalked glands at the base, 4-6 in. long and broad, with 3-5 shallow deltoid lobes, moderately firm in texture, green and obscurely pilose or minute spots on the upper surface, densely coated with soft light drab pubescence beneath. Flowers in shortly-peduncled racemes $\frac{1}{2}$ ft. long, several from a node, very numerous male and only 1-2 females; pedicels erectopatent, finally longer than the flowers; bracts small, subulate, tomentose, deciduous. Male flower $\frac{1}{4}$ - $\frac{1}{3}$ in. diam. when expanded, with 5 deltoid sepals, densely clothed with brown tomentum outside, 5 whitish obovate pilose petals of the same length, and about 20 stamens. Female flower with 5 spreading coriaceous sepals $\frac{1}{8}$ in. long, no petals, a globose densely brown-hispid ovary $\frac{1}{8}$ in. diam., and copiously-branched black spirally-twisted stigmas.—Edges of woods in East Betsileo, *Baron* 262! An ally of the last species.

Aloe Sahundra, Bojer, Hort. Maur. 345?—Leaves not seen. Flowers in a dense simple spike 6-8 in. long, 1½ in. diam. when expanded, on a peduncle longer than itself, with several empty bracts. Bracts orbicular-cuspidate, $\frac{1}{3}$ - $\frac{1}{2}$ in. long and broad, with 8-10 close green ribs in the brick-red centre, and a broad membranous border. Perianth sessile, yellow, polyphyllous, $\frac{1}{2}$ - $\frac{5}{8}$ in. long; segments oblanceolate, obtuse, with about 3 distinct brown

ribs down the centre. Stamens as long as the perianth; anthers minute, ovate, reddish yellow. Style finally exerted $\frac{1}{4}$ – $\frac{1}{2}$ in. from the perianth.—Noman's land, between Imerina and Betsileo, *Baron* 339! This is probably the species from Central Madagascar named as above by Bojer; but, as he gives no description, this cannot be verified unless a specimen has been preserved somewhere. It is well-marked by its polyphyllous perianth and strictly spicate inflorescence, and I hope the resident botanists will soon send us full information about its leaves and habit. There is a second Madagascar species, *A. leptocaulon*, Bojer, Hort. Maur. 345 (name only), which has never been described, and of which we have no specimens: this covers the summits of the mountains on the banks of the River Omlahi, which flows into the bay of St. Augustin. Judging from Bojer's note on its habit, its alliance is with *A. tenuior* and *A. ciliaris* of the Cape.

ANTHERICUM (Phalangium) TRIPEDALE, n. sp.—Leaves in a dense basal rosette, linear, $1\frac{1}{2}$ –2 ft. long, $\frac{1}{6}$ in. broad, tapering to the point, firm in texture, with a distinct midrib, and numerous close distinct much-raised scabrous ribs. Peduncle terete, as long as the leaves, with only 1–2 empty bracts, the lower foliaceous. Flowers 30–40 in a lax raceme above a foot long; pedicels erectopatent, geminate, $\frac{1}{4}$ – $\frac{1}{3}$ in. long, articulated at the middle; bracts deltoid, reddish, membranous, the upper $\frac{1}{3}$, the lower $\frac{1}{4}$ in. long. Perianth white, $\frac{1}{3}$ – $\frac{1}{2}$ in. long, the oblong-lanceolate divisions with 5–6 distinct ribs in the centre. Stamens rather shorter than the perianth-segments; anthers lanceolate, $\frac{1}{6}$ in. long; filaments linear, shorter than the anthers, not muricated. Capsule with 3 oblong rugose glabrous valves, $\frac{1}{2}$ in. long; seeds many in each cell, superposed.—Hillsides in West Betsileo, flowering in December and January, *Baron* 74! Habit of *A. triflorum*, Ait., of the Cape, with very different stamens.

ANTHERICUM PARKERI, n. sp.—Root a dense tuft of fleshy cylindrical fibres, with several dry scarioso linear leaves at the crown. Produced leaves 5–6, linear, $1\frac{1}{2}$ in. broad, tapering to the point, green, glabrous, firm in texture, with close distinct ribs. Peduncle very short. Flowers in a lax simple raceme, finally 2–3 in. long, and reaching to the top of the leaves; bracts small, lanceolate or deltoid; pedicels geminate, finally $\frac{1}{4}$ – $\frac{1}{3}$ in. long, articulated below the middle. Perianth 1–12th in. long; segments oblong-lanceolate, the central third of the 3 outer greenish, with 3 indistinct ribs, not contorted after flowering. Stamens included; filaments linear, glabrous, twice as long as the minute subglobose anthers. Capsule depresso-globose, $\frac{1}{6}$ in. diam., deeply 3-lobed, with 2 turgid black seeds in each cell.—Central Madagascar, *Dr. Parker*! Native name *Ahitrakondro*. A doubtful member of the subgenus *Streptanthera*, of which it has the geminate ovules, but not the linear-oblong perianth-segments, which, as in *Casia*, twist up spirally after fertilisation.

Asparagus simulans, Baker.—Very common in forests throughout Betsileo and Imerina, *Baron* 220!

DIOSCOREA OVINALA, n. sp.—A climber, with an edible tuber and

slender terete downy stems. Leaves alternate, long-petioled, simple, cordate-ovate-cuspidate, 2-3 in. long, not coriaceous, green and obscurely pilose above, matted with persistent grey tomentum beneath, furnished with 5-7 distinct vertical ribs. Male flowers in lax solitary shortly-peduncled spikes $1\frac{1}{2}$ -2 in long from the axils of the leaves; flowers distant, 1-2-nate; rachis flexuose, densely pubescent; pedicels 0 or very short; bracts minute, lanceolate. Male perianth 1-16th in. diam. when fully expanded; segments oblong, much imbricated, bright red. Fertile stamens 6, $\frac{1}{4}$ as long as the perianth-segments; anthers minute, globose, yellow, about as long as the filaments. Female flowers and fruit not seen.—Woods in Betsileo-land, flowering in January, *Baron* 52! Native name *Ovin-ala*.

DIOSCOREA HEXAGONA, n. sp.—A twining shrub, glabrous in all its parts, with woody branchlets, with about six acute angles. Leaves simple, alternate, subsessile, elliptic, rounded at both ends, distinctly cuspidate or rarely lanceolate, acute, subcoriaceous in texture, green and glabrous on both surfaces, with 5-7 prominent vertical ribs running from base to apex. Male flowers in 1-2-nate subdense spikes 1-3 in. long, on short peduncles from the axils of the leaves; flowers usually 2 to a node; pedicels 0 or very short; bracts lanceolate, 1-16th to 1-12th in. long. Male perianth campanulate, $\frac{1}{2}$ lin. long; segments oblong, obtuse, much imbricated permanently. Fertile stamens 6, 1-4th to 1-5th as long as the perianth-segments; anthers globose, as long as the filaments. Female flowers and fruit not seen.—Hillsides in West Betsileo, flowering in December and January, *Baron* 95! 140!

DIOSCOREA HETEROPODA, n. sp.—A climber, glabrous in all its parts, with slender angled twining stems and large tubers, which are edible, but not palatable. Leaves alternate; petiole shorter than the blade, which is cordate-ovate cuspidate, 2-3 in. long on the flowering branchlets, but sometimes 6-8 in., moderately firm in texture, green on both surfaces, with 11-13 distinct vertical ribs connected by cross-veinlets. Male flowers in lax 1-2-nate racemes 1-3 in. long on short peduncles from the axils of the leaves; pedicels often 3-4 to a node, very unequal, the longest 3-4 times as long as the perianth; rachis slender, angled, glabrous; bracts minute, lanceolate. Male flowers yellowish white, 1 lin. diam. when fully expanded; segments oblong or suborbicular, much imbricated, $\frac{1}{2}$ lin. long. Fertile stamens 6, not more than $\frac{1}{4}$ as long as the perianth-segments, incurved, the globose anthers $\frac{1}{2}$ as long as the filaments. Female flowers and fruit not seen.—Betsileo-country, flowering in December and January, *Baron* 119! 139!

XEROPHYTA PECTINATA, n. sp.—A much-branched shrub, 1-3 feet high. Branches $\frac{1}{2}$ in. diam., clothed with the closely imbricated squarrose woody bases of the old leaves, with their close flattened brown spinulose ribs. Produced leaves 6-15 in a rosette, linear, erect, $\frac{1}{2}$ ft. long, 1-12th in. broad at the base, rigid in texture, tapering to a point, channelled down the face, closely ribbed, the young ones ciliated with crowded spreading pale brown bristles

1-12th in. long, the old ones denticulate. Peduncles 2-4 to a rosette, as long as or rather longer than the leaves, scabrous, with sessile black glands in the upper half. Ovary cylindrical, $\frac{1}{4}$ in. long, rugose, with crowded black sessile glands, without any bristles. Perianth-segments lanceolate, tinged with lilac, $\frac{3}{4}$ - $\frac{7}{8}$ in. long. Anthers linear, $\frac{1}{2}$ in. long, yellow; filaments very short. Fruit oblong, 3-lobed, with numerous small seeds in each cell.—Rocky ground in Betsileo-land, flowering from November to January. Native name *Hosana*. Nearly allied to *X. dasytiroides*, Baker, in Journ. Bot., 1875, p. 235, a species gathered by Bojer in the mountains of the province of Imerina.

XEROPHYTA SESSILIFLORA, n. sp.—A much-branched shrub, about a foot high, with terete woody stems $\frac{1}{8}$ - $\frac{1}{4}$ in. diam., clasped by the truncate adpressed bases of the old leaves, the flat unciliated ribs of which have narrow hollows between them. Produced leaves 6-10 in a lax rosette, spreading or reflexed, linear, rigid in texture, about an inch long, with a tuft of white fibres in the axils, tapering to a point, acutely channelled down the face, bordered on the edges and keel beneath with small ascending spines like those of a *Pandanus*. Flowers solitary, sessile at the end of the branchlets. Ovary cylindrical, $\frac{1}{6}$ in. long, with a few black sessile glands. Perianth-segments lanceolate, $\frac{1}{2}$ in. long. Anthers $\frac{1}{6}$ in. long, nearly sessile. Capsule subglobose, $\frac{1}{6}$ in. long, with a few black glands.—Rocky ground in the Betsileo-country, flowering from November to January, *Baron 13!* Native name *Hosana*, like the other species.

LYCOPodium STRICTUM, n. sp. — Stems pendulous, flexuose, forked, about a foot long. Leaves alternate, quadrifarious, sessile, ascending, much imbricated, oblong, 1-5th to 1-4th in. long, obtuse, thick and firm in texture, the midrib quite hidden. Spikes sessile, terminal, 2-3 in. long, 2-3 times dichotomously forked, square, 1 lin. diam.; bracts suborbicular, obtuse, slightly imbricated, about as long as the sporangia.—Central Madagascar, *Dr. Parker!* A near ally of *L. gvidioides*, L.

RECENT ADDITIONS TO THE BRITISH LICHEN-FLORA.

BY THE REV. J. M. CROMBIE, F.L.S.

SINCE the publication of the last edition of Leighton's 'Lichen-Flora of Great Britain' (1879), the following species and varieties (exclusive of *Cladonieae*) have now to be added to our already extensive Lichen-Flora. With the exception of those of which the diagnoses are here given, the numerous new species and varieties have been recorded by me from time to time in 'Grevillea.'

Pyrenopsis subareolata, Nyl.—On schistose rocks. Barmouth, N. Wales (Dr. Holl). A somewhat atypical state.

Lichiniza Kennmorensis, (Holl), Nyl., in Flora, 1881, p. 6, gen. & sp. n.—On micaceo-schistose boulders. Shores of Loch Tay,